What is claimed is:

1. A deinterlacing apparatus comprising:

a mixing weight calculation unit to calculate a weight for mixing after detecting a degree of a motion between a pixel of a previous field and a pixel of a next field, which pixels correspond to a pixel of a current field to be interpolated;

an intra-field interpolation unit to detect directional data included in values of pixels of the current field adjacent to the pixel to be interpolated into the current field, andto calculate a first interpolation value by using the values of the adjacent pixels in accordance with the directional data;

an inter-field interpolation unit to calculate a second interpolation value obtained by averaging the values of the pixel in the previous field and the pixel in the next field corresponding to the pixel to be interpolated into the current field; and

a soft switching unit to mix the first and second interpolation values by using the weight and to output a mixed value.

2. The deinterlacing apparatus of claim 1, wherein the mixing weight calculation unit comprises:

a motion detection unit to calculate a motion information value showing the degree of motion between the pixel of the previous field and the pixel of the next field based on the pixel to be interpolated into the current field;

a space filtering unit to remove a noise included in the motion information value and to output the motion information value;

a motion expansion unit to expand the motion information value to the pixels adjacent to the pixel to be interpolated of the current field and output the value; and

an alpha conversion function unit to calculate the weight for mixing based on the expanded motion information value.

3. The deinterlacing apparatus of claim 2, wherein the motion detection unit calculates the motion information value by using a predetermined function that is inversely proportional to an input of an edge value of a vertical direction.

4. The deinterlacing apparatus of claim 1, wherein the intra-field interpolation unit comprises:

a horizontal high frequency element detection unit to calculate a horizontal high frequency element value around the pixel to be interpolated into the current field;

a vertical low frequency pass filtering unit to perform low frequency filtering based on the calculated horizontal high frequency element value;

a directional element detection unit to calculate directional data based on values of the pixels adjacent to the pixel to be interpolated into the current field;

a global/local minimum directional value calculation unit to calculate a global minimum directional value and a local minimum directional value based on the calculated directional data;

a reliability detection unit to calculate a final interpolation direction based on the global minimum directional value and the local minimum directional value; and

a final interpolation unit to calculate a final interpolation value in one direction among a global, a local and a vertical direction based on the final interpolation direction.

5. The deinterlacing apparatus of claim 4, wherein the horizontal high frequency element detection unit calculates the horizontal high frequency element value by using a sum of gradients of the pixels adjacent to the pixel of the current field to be interpolated.

6. The deinterlacing apparatus of claim 4, wherein the final interpolation unit performs interpolation in the vertical direction when the horizontal high frequency element value is greater than a predetermined first threshold, and performs interpolation in accordance with the final interpolation direction calculated by the reliability detection unit when the horizontal high frequency element value is smaller than the predetermined first threshold.

7. The deinterlacing apparatus of claim 6, wherein the interpolation is performed after detecting whether a pixel value interpolated in the global direction corresponds to a median value of two pixels up and down in a local direction when the final interpolation unit performs the interpolation in the global direction.

8. A deinterlacing method comprising:

calculating a weight for mixing after detecting a degree of a motion between a pixel of a previous field and a pixel of a next field based on a pixel of a current field to be interpolated the previous, the current and next fields referring to image signals input consecutively;

detecting directional data being included in values of pixels adjacent to the pixel to be interpolated into the current field, and calculating a first interpolation value by using the values of the adjacent pixels in accordance with the directional data;

calculating a second interpolation value by averaging the values ofthe pixel of previous field and the pixel of the next field corresponding to the pixel to be interpolated into the current field; and

mixing the first and second interpolated values by using the calculated weight for mixing, and outputting the mixed value.

9. The deinterlacing method of claim 8, wherein the calculating of the weight for mixing comprises:

calculating an initial motion information value showing a degree of a motion between the previous and the next field based on the pixel to be interpolated into the current field;

removing a noise included in the initial motion information value and outputting a reduced noise motion information value;

expanding the reduced noise motion information value to the pixels adjacent to the pixel to be interpolated of the current field and outputting an expanded motion information value; and

calculating a weight to mix based on the expanded reduced motion information value.

10. The deinterlacing method of claim 9, wherein, the initial motion information value is calculated by using a predetermined function that is inversely proportional to an input of an edge value of a vertical direction.

11. The deinterlacing method of claim 8, wherein the detecting of the directional data comprises:

calculating a horizontal high frequency element value around the pixel to be interpolated into the current field;

performing low frequency filtering on the calculated horizontal high frequency element value;

calculating directional data based on values of pixels adjacent to the pixel to be interpolated into the current field;

calculating a global minimum directional value and a local minimum directional value based on the calculated directional data;

calculating a final interpolation direction based on the global minimum directional value and the local minimum directional value; and

calculating a final interpolation value in one direction among a global, a local and a vertical direction based on the final interpolation direction.

12. The deinterlacing method of claim 11, wherein the horizontal high frequency element value is calculated by using a sum of gradients of the pixels adjacent to the pixel of the current field to be interpolated.

13. The deinterlacing method of claim 11, wherein:

the calculating of the final interpolation value is performed in the vertical direction when the horizontal directional high frequency element value is greater than a predetermined first threshold, and

the calculating of the final interpolation value is performed in accordance with the final interpolation direction calculated when the horizontal high frequency element value is smaller than the predetermined first threshold.

14. The deinterlacing method of claim 13, wherein:

the interpolation is performed after detecting whether a pixel value interpolated in the global direction corresponds a median value of two pixels up and down in a local direction when the interpolation is performed in the global direction.